National Weather Service
San Diego, CA
December 15 to 22, 2010 Rain Event and Flooding
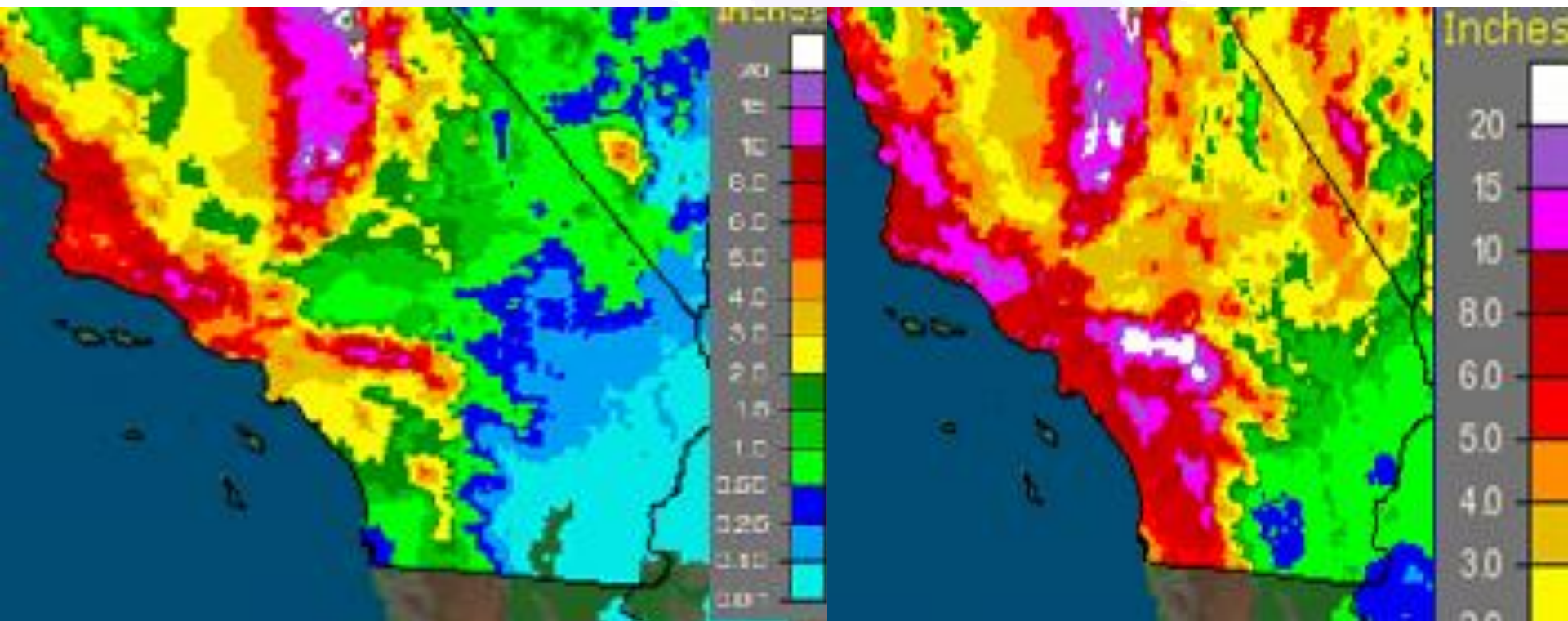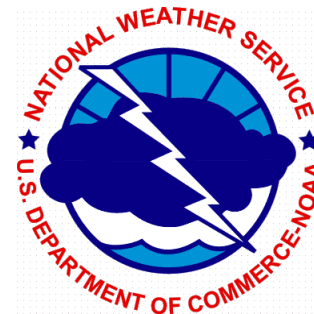
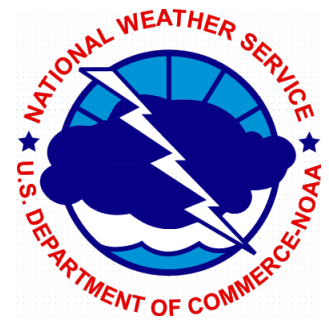| Hazard	Impacts and Location
Wednesday to Sunday	
Heavy Rain	**Increasing and developing Friday and into weekend Orange and San Bernardino**
Flooding	**Debris flows, creeks low lying and urban flooding**
Snow Level	**8500 feet**
Mountain Winds	**Southwest 35 to 45 mph gust 65 mph**
Monday to Wednesday	
Heavy Rain	**Widespread**
Flooding	**Rivers, debris flows, land slides, low lying, inundation, urban flooding, flood prone drainages and creeks**
Snow Level	**6500 feet lowering to 5000 feet. Significant accumulation.**
Mountain Winds	**Southwest 20 to 30 mph gust 45 mph**

National Weather Service
San Diego, CA

Rainfall up to December 20 (left)
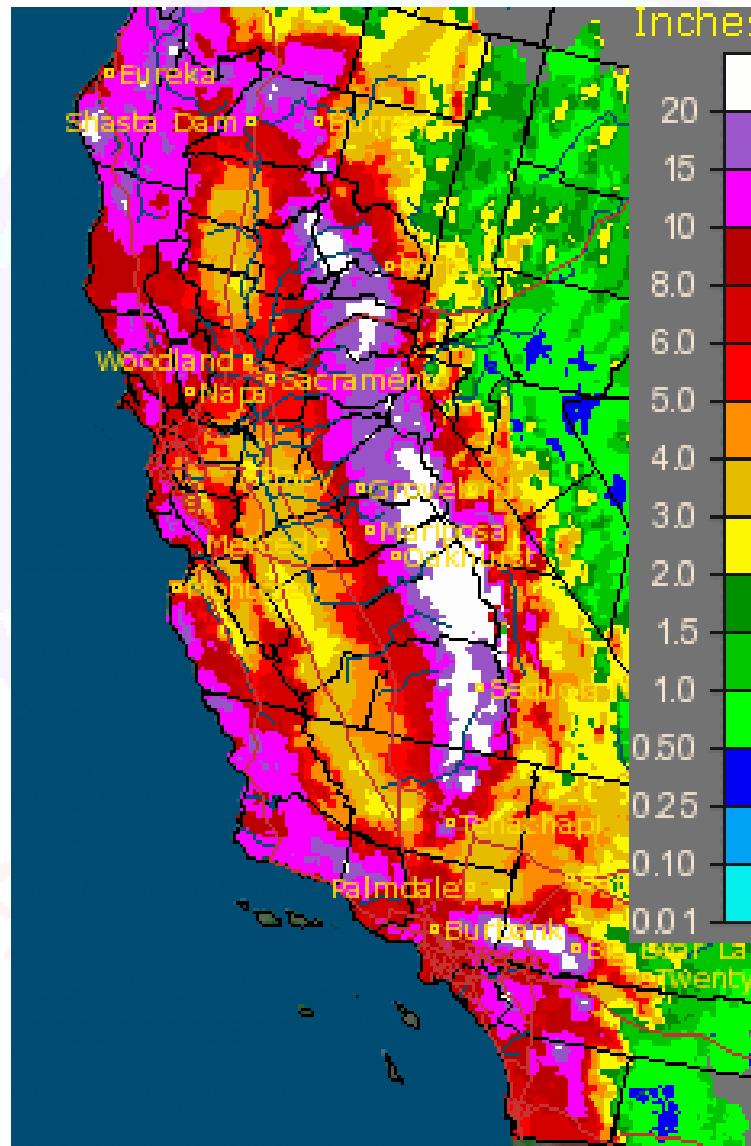*and total precipitation 14-day (right) ending*
December 23, 2010
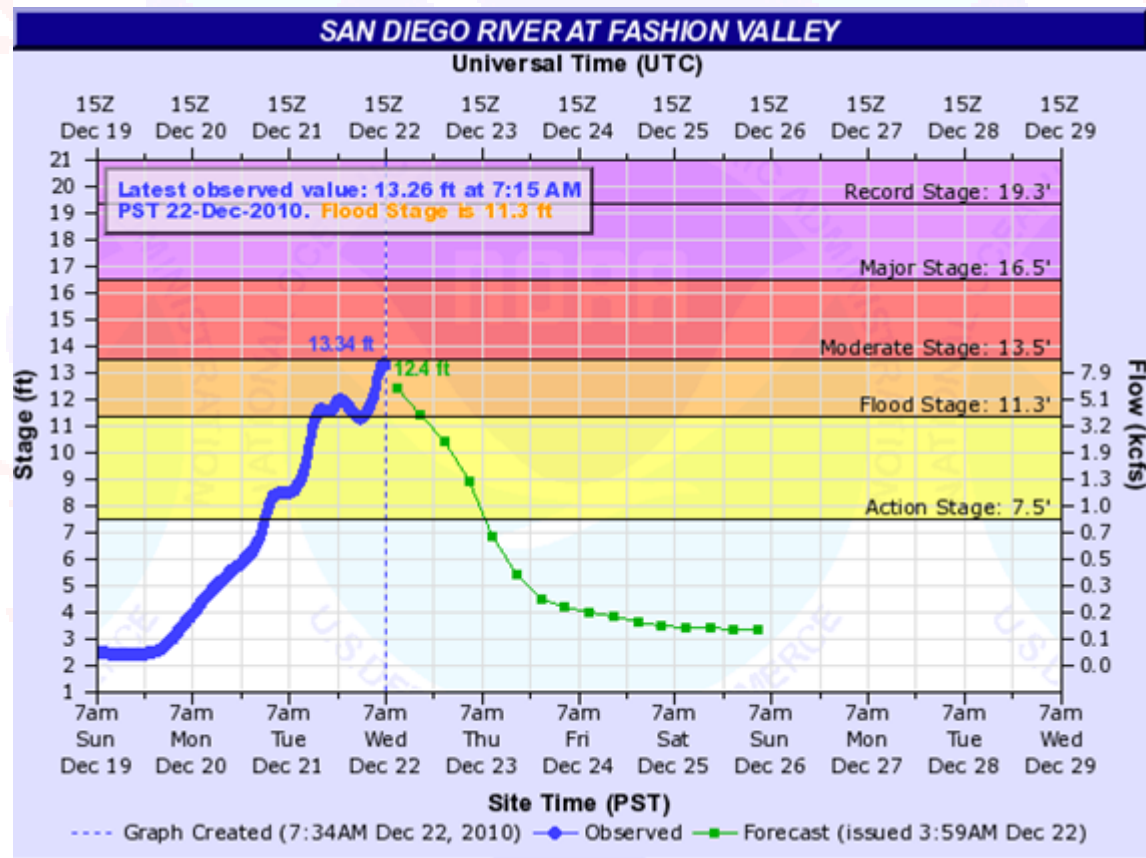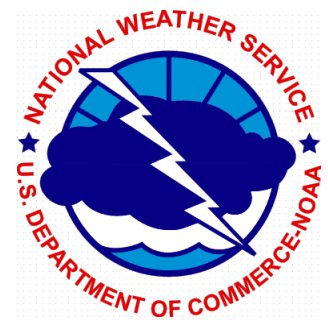
National Weather Service
San Diego, CA
30-day precipitation ending January 5, 2011

National Weather Service
San Diego, CA
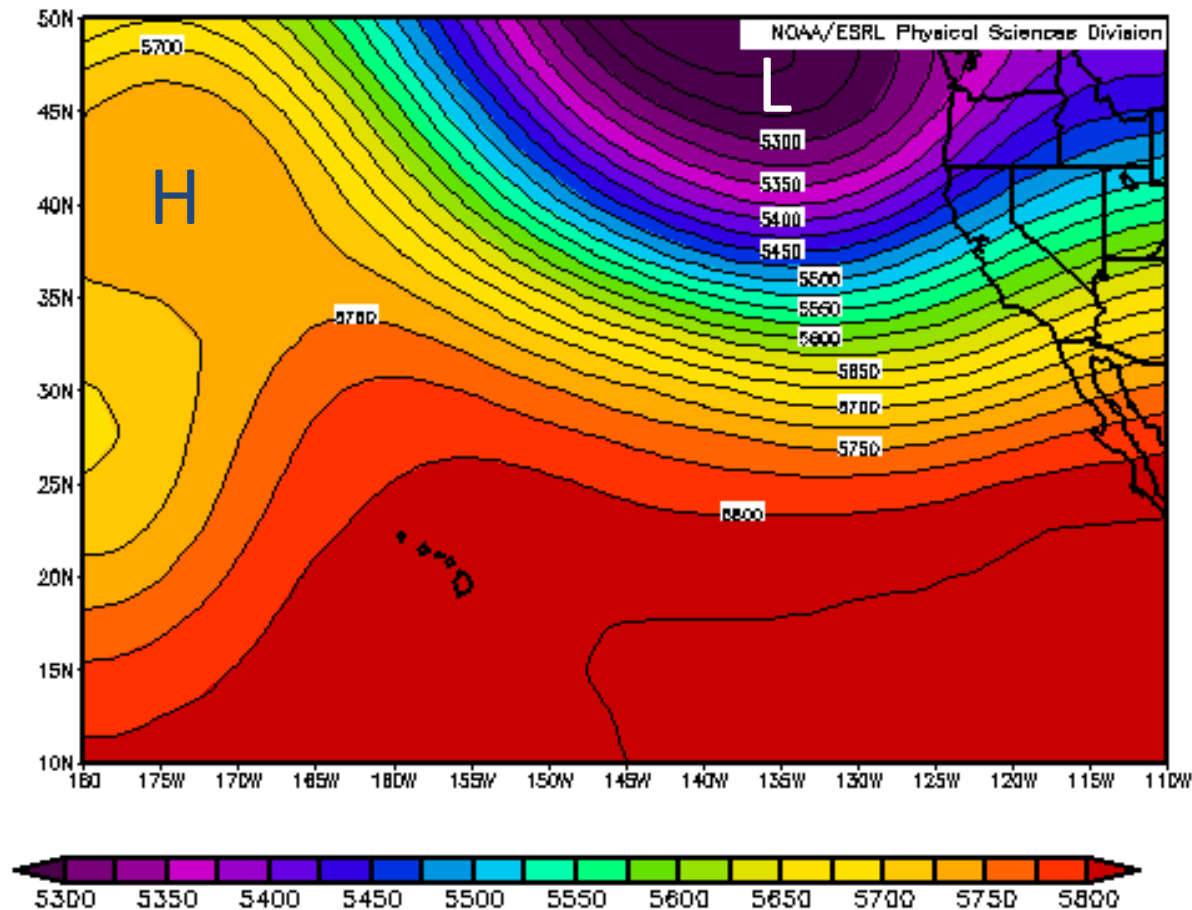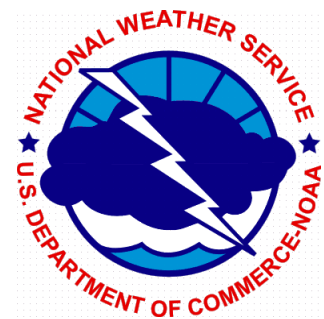## *San Diego River near crest morning of December 22*
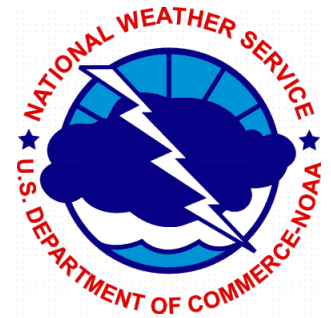
National Weather Service
San Diego, CA
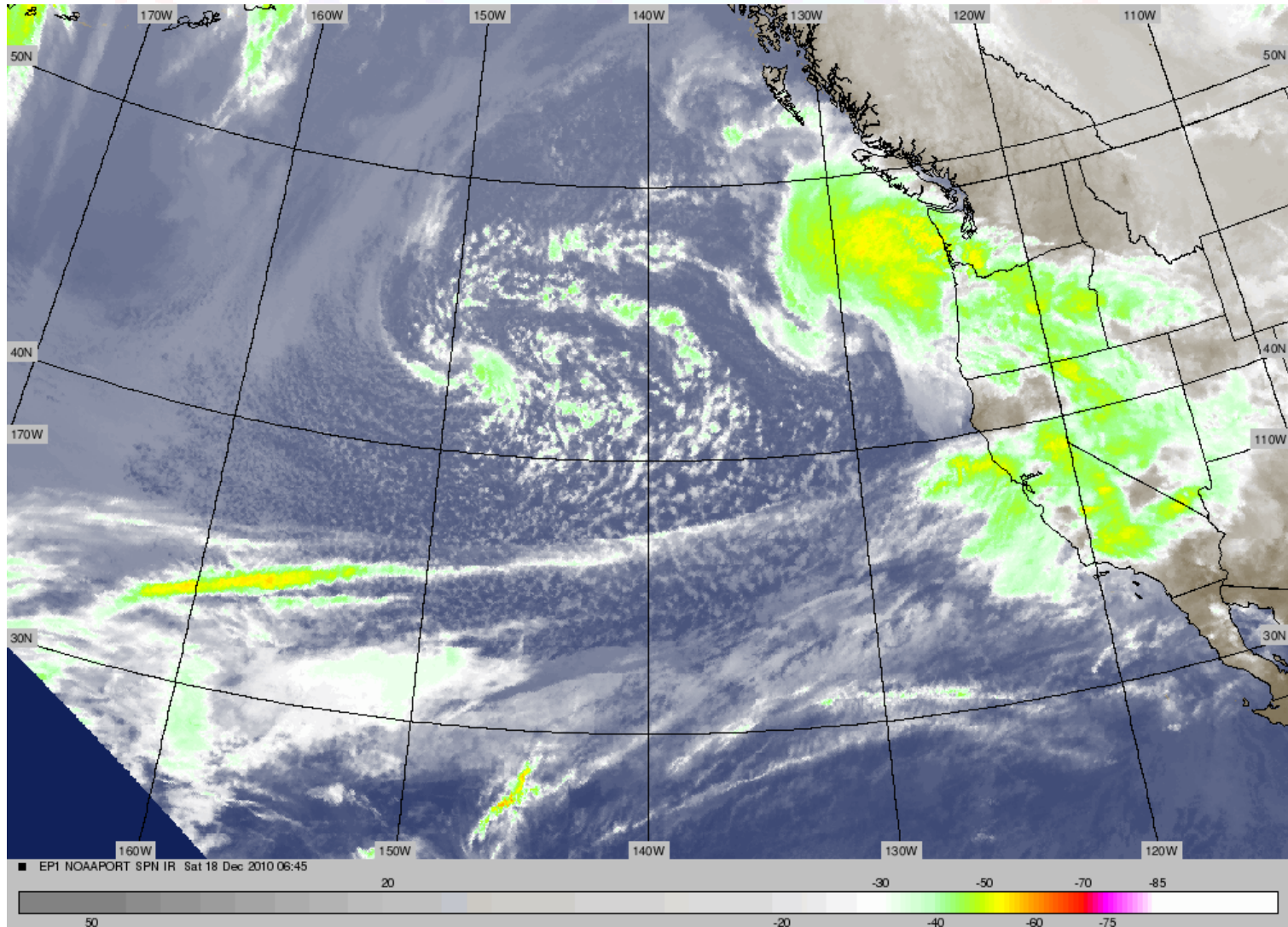*Weather Pattern December 16 to 22, 2010*
persistent deep upper trough

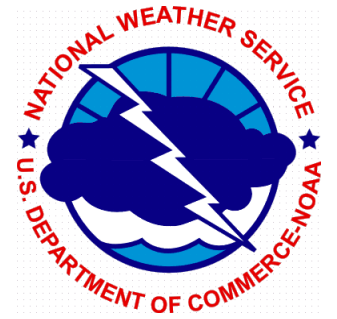# National Weather Service
San Diego, CA

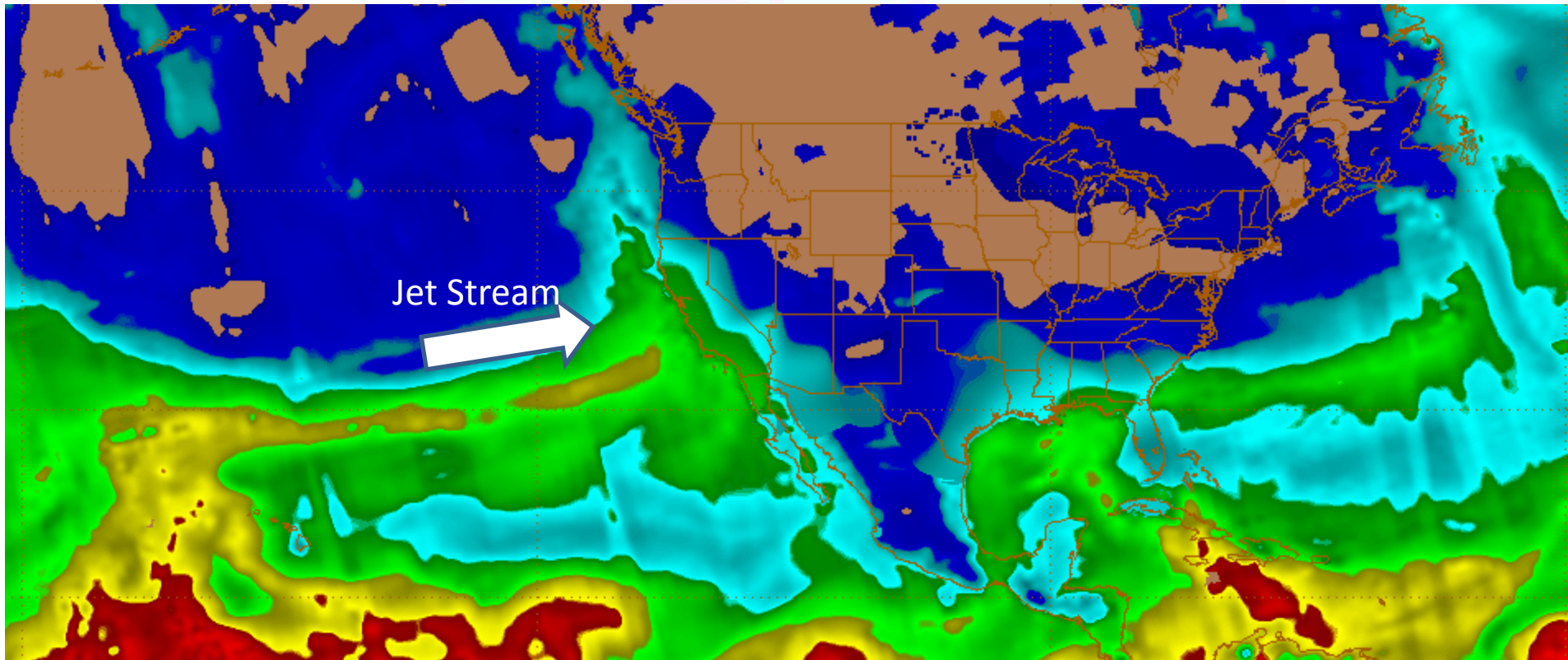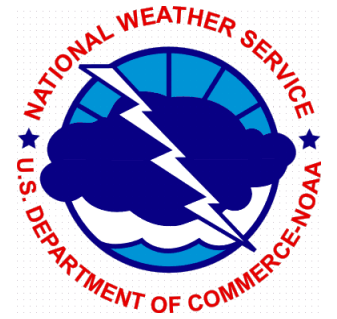*satellite image Friday evening December 17*

National Weather Service
San Diego, CA

Deep moisture plume pointed at Southern California across the east Pacific poised to move onshore Friday evening December 17
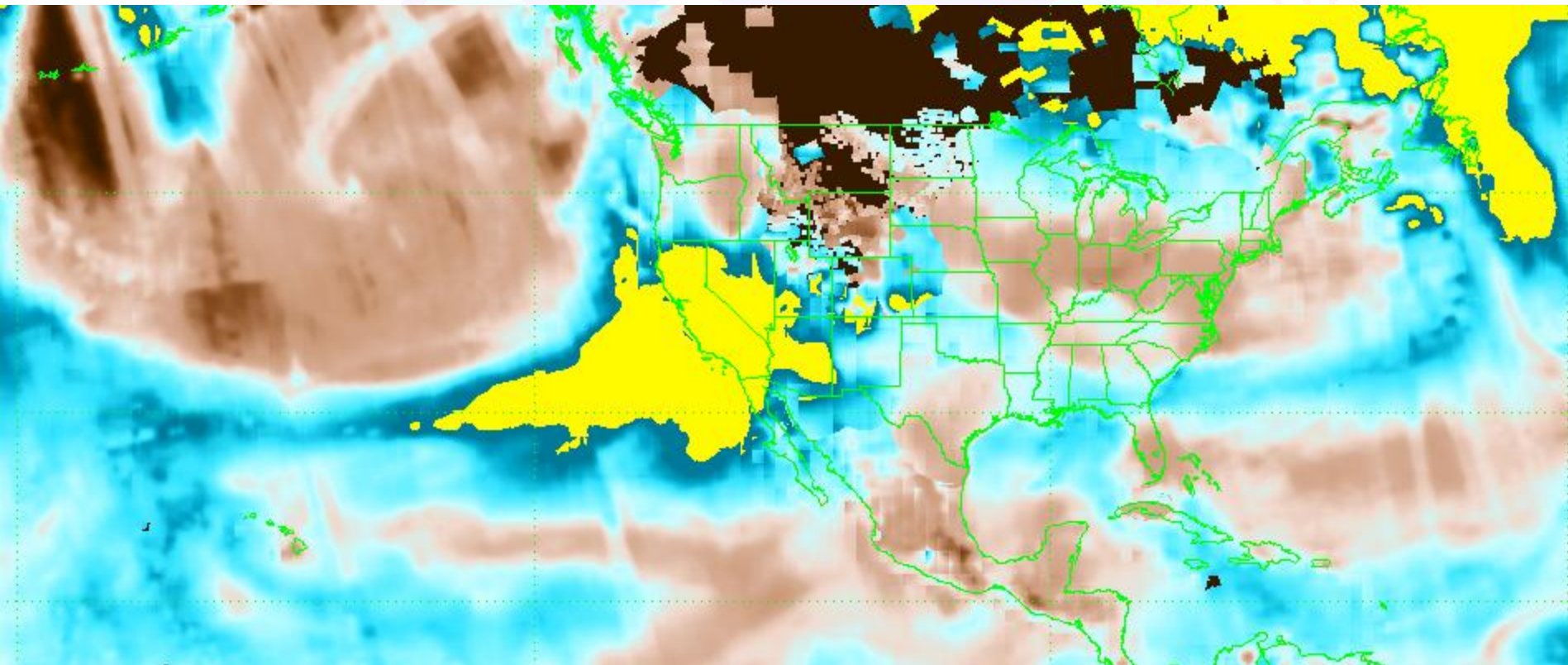
Jet Stream

highest moisture in yellow and red

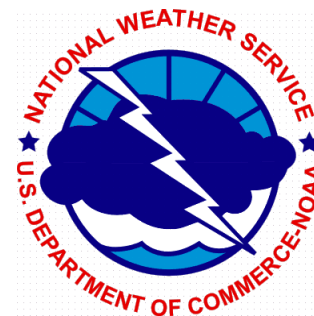# National Weather Service
San Diego, CA

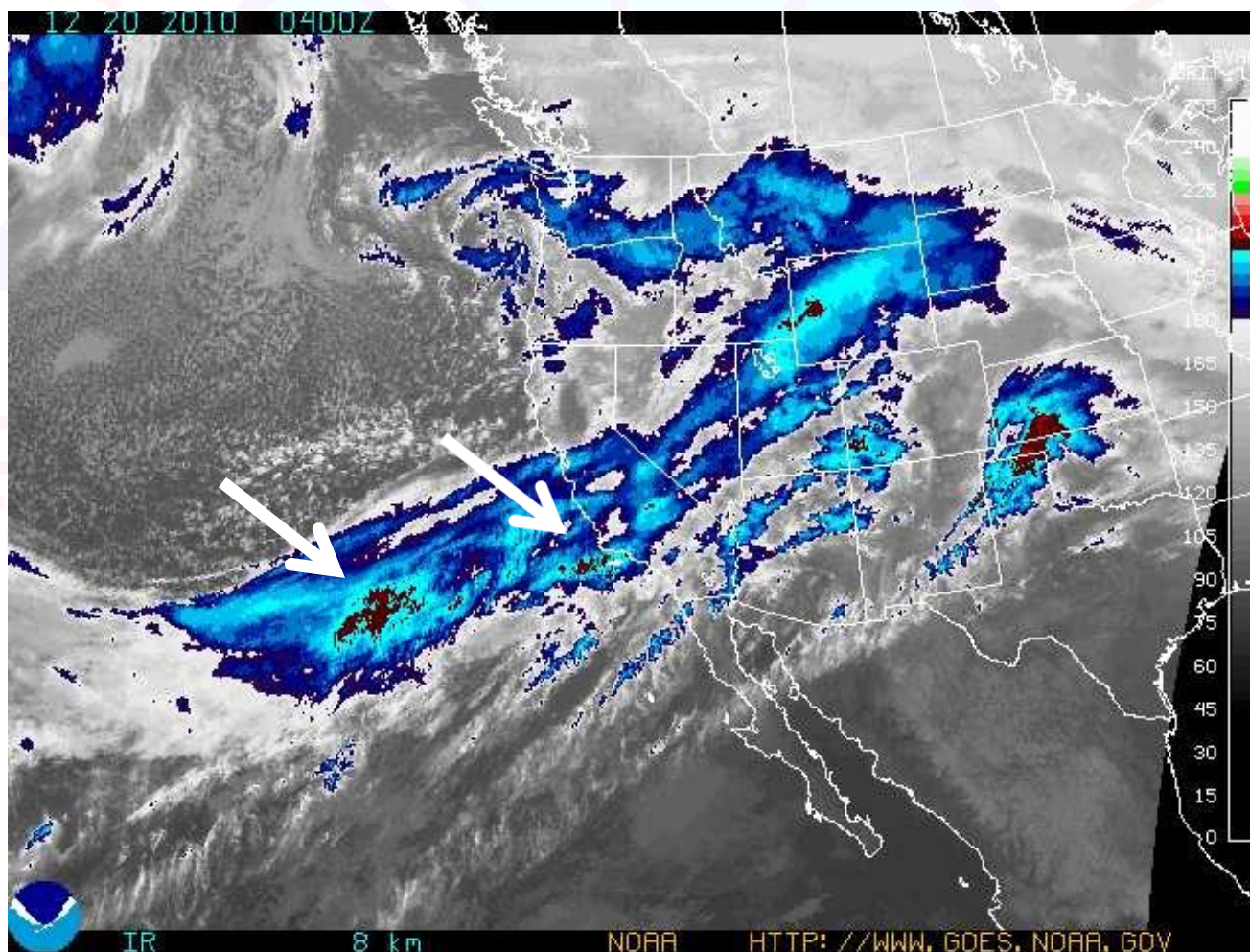*Deep moisture plume percent of normal*
(150 to 200 percent normal)

National Weather Service
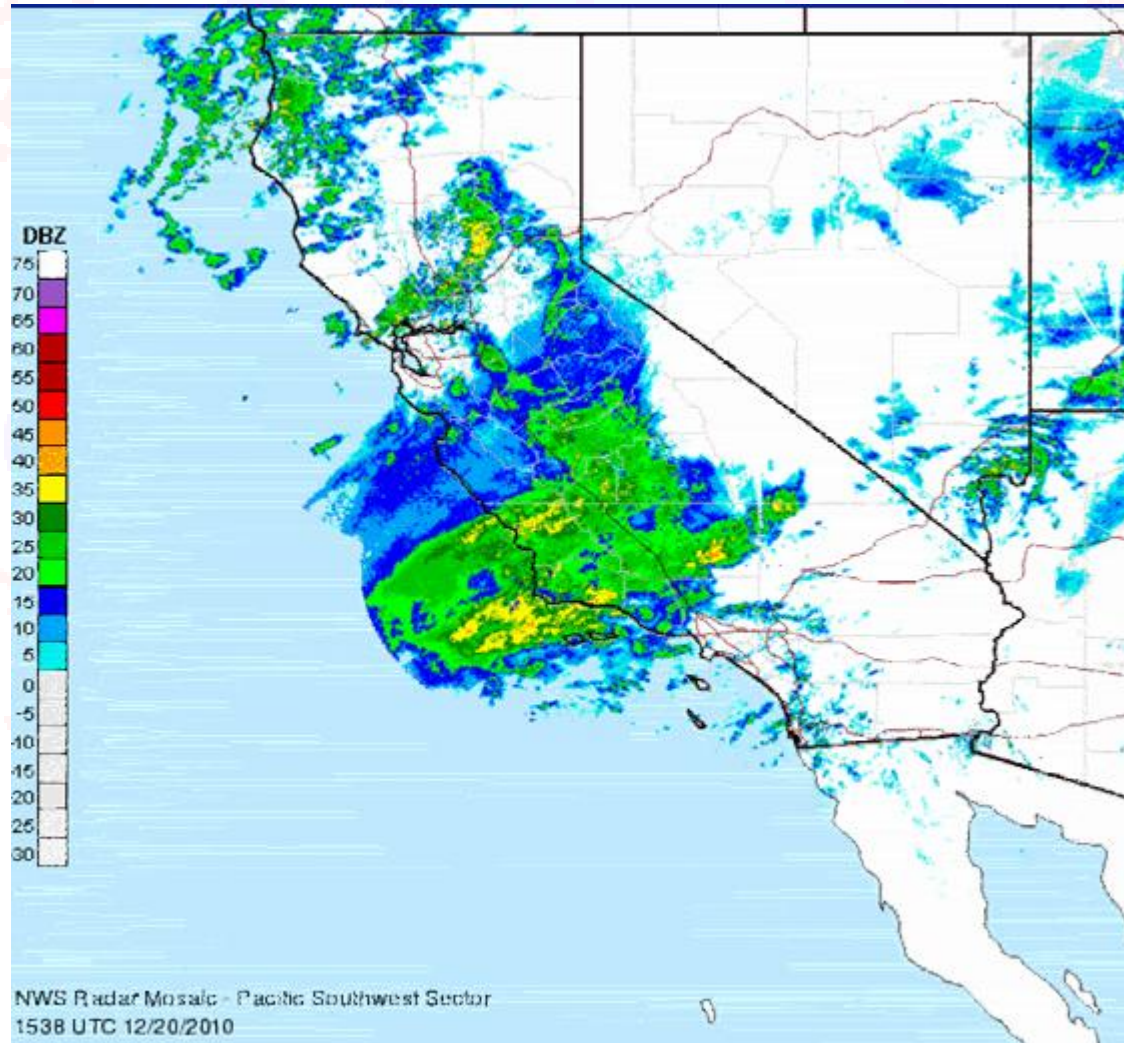## San Diego, CA

heavy rain over the Pacific poised to move onshore
Sunday evening December 20
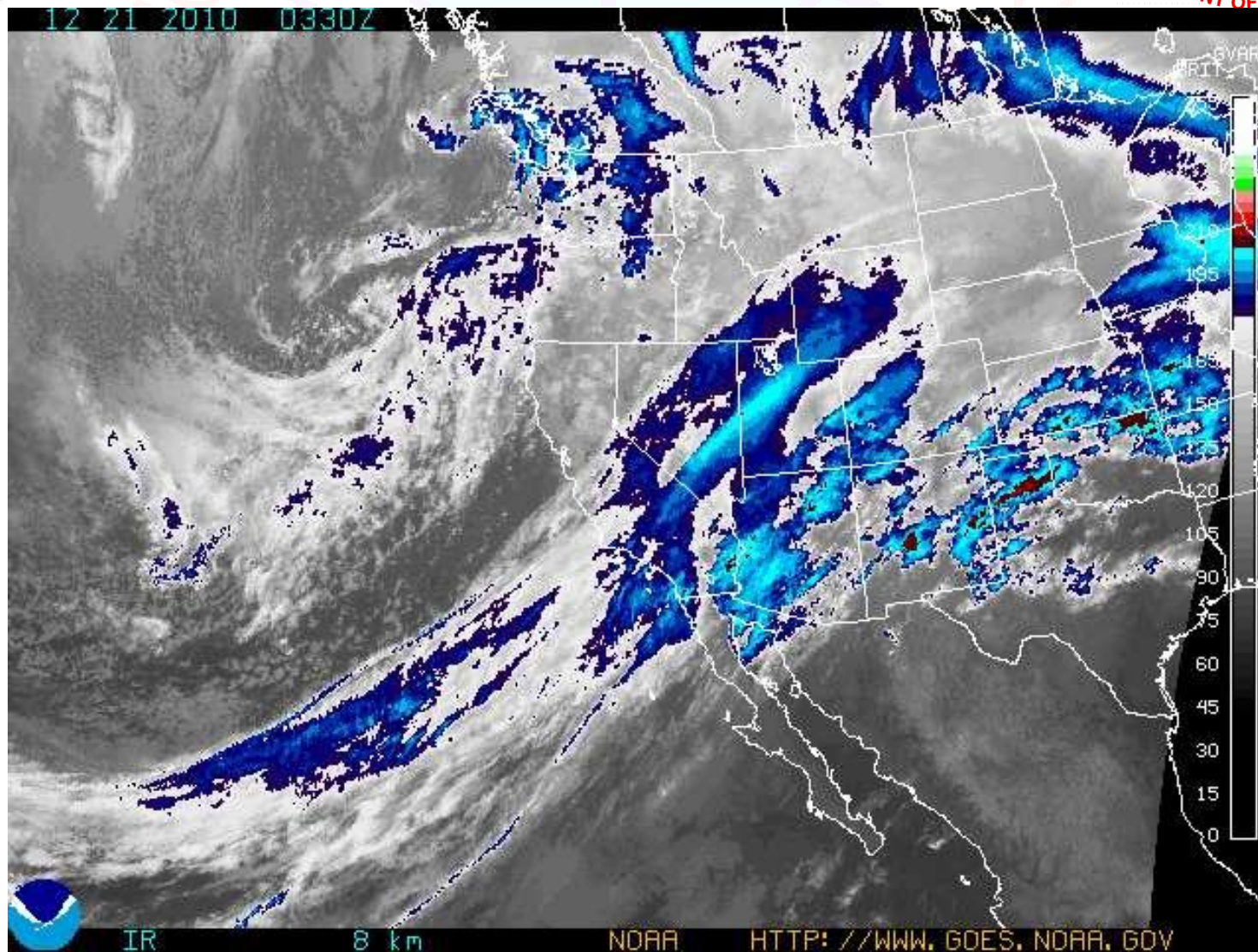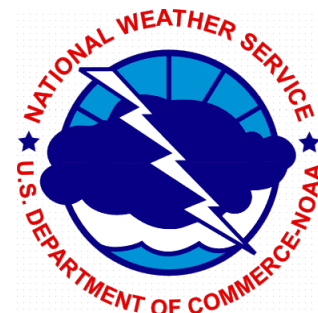
National Weather Service
San Diego, CA

mosaic radar image morning of December 20
main moisture plume and wave moves onshore

NWS Radar Mosaic - Pacific Southwest Sector
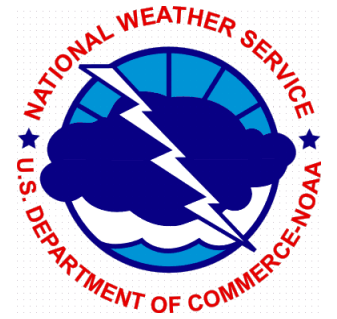1538 UTC 12/20/2010

National Weather Service
San Diego, CA

infrared GOES image December 20 evening
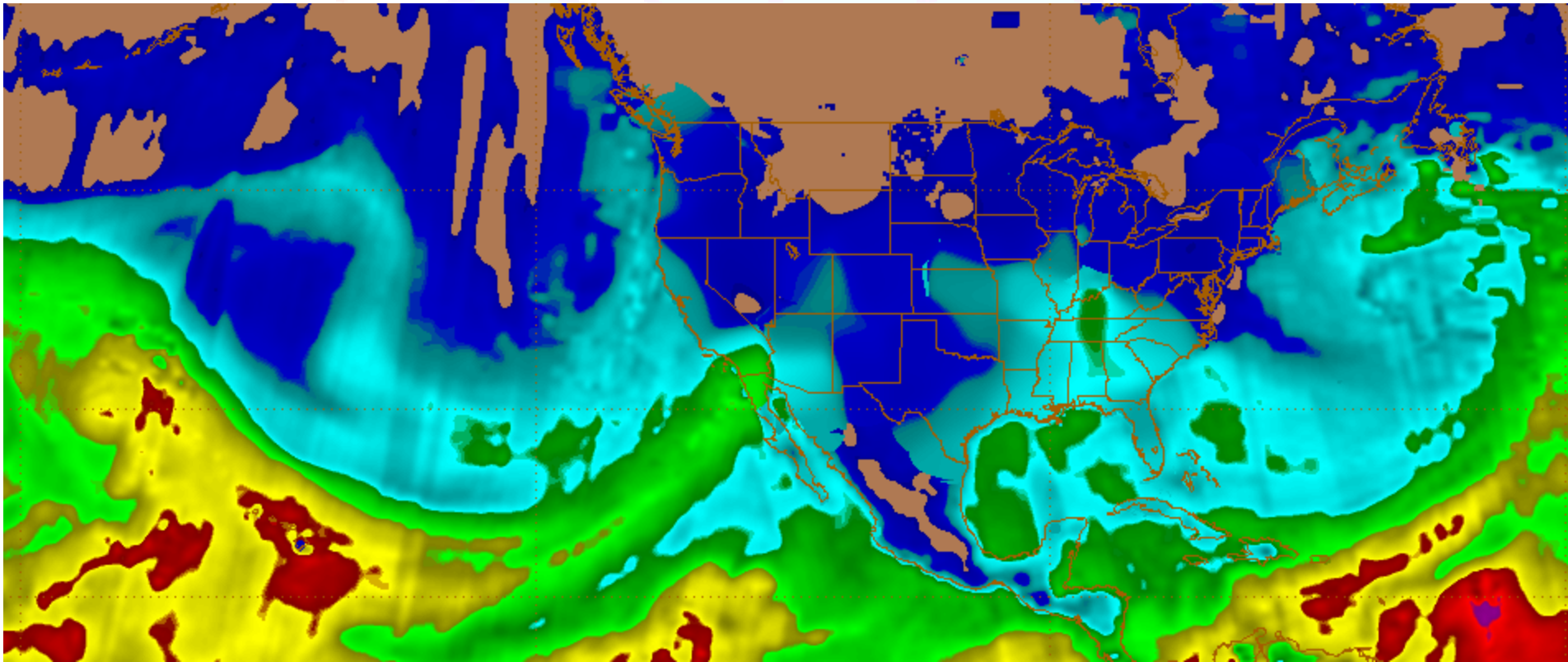*main moisture plume and wave moves onshore*
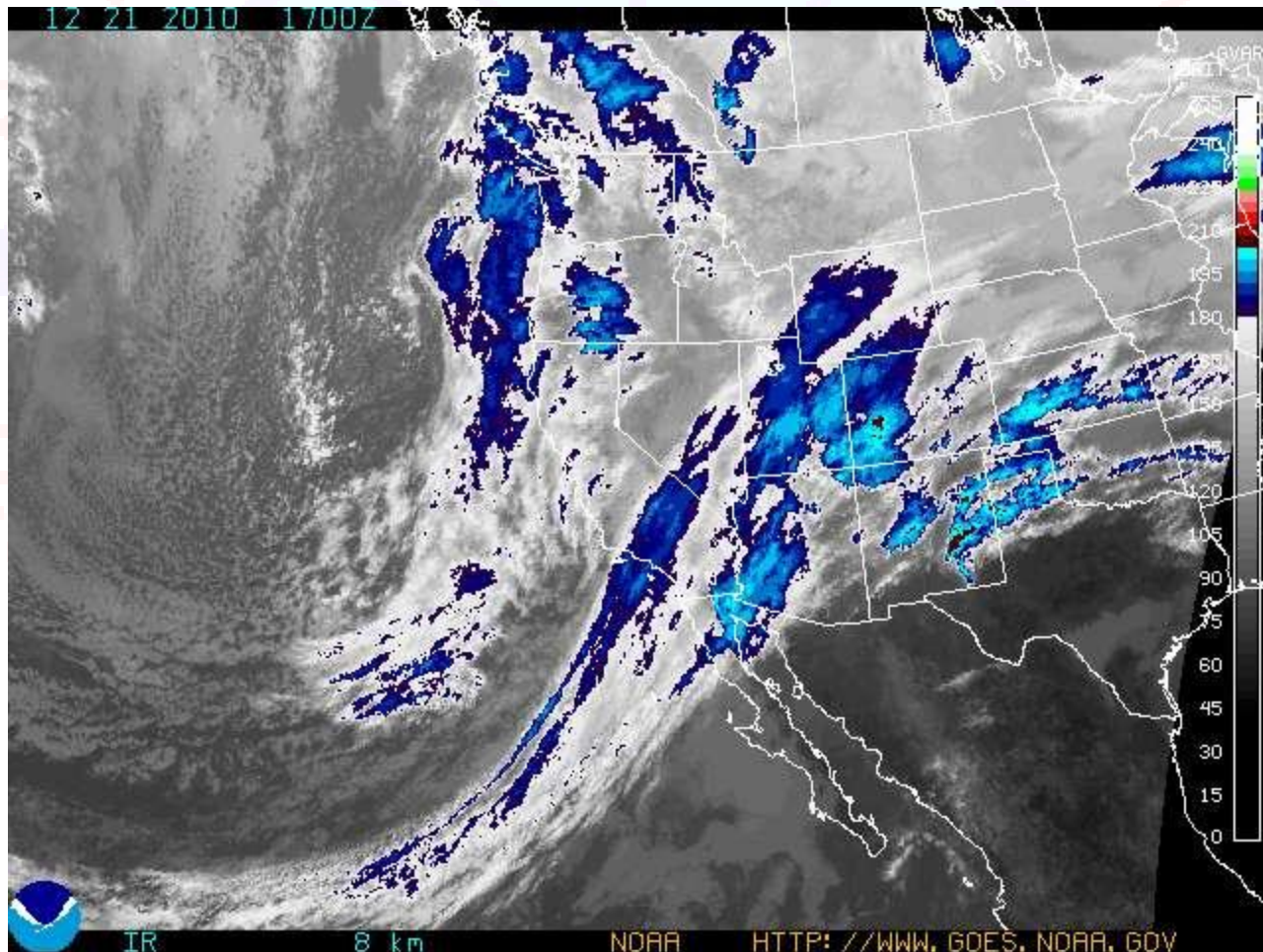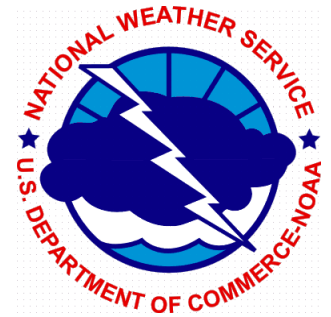
National Weather Service
San Diego, CA

tropical moisture plume over San Diego December 21

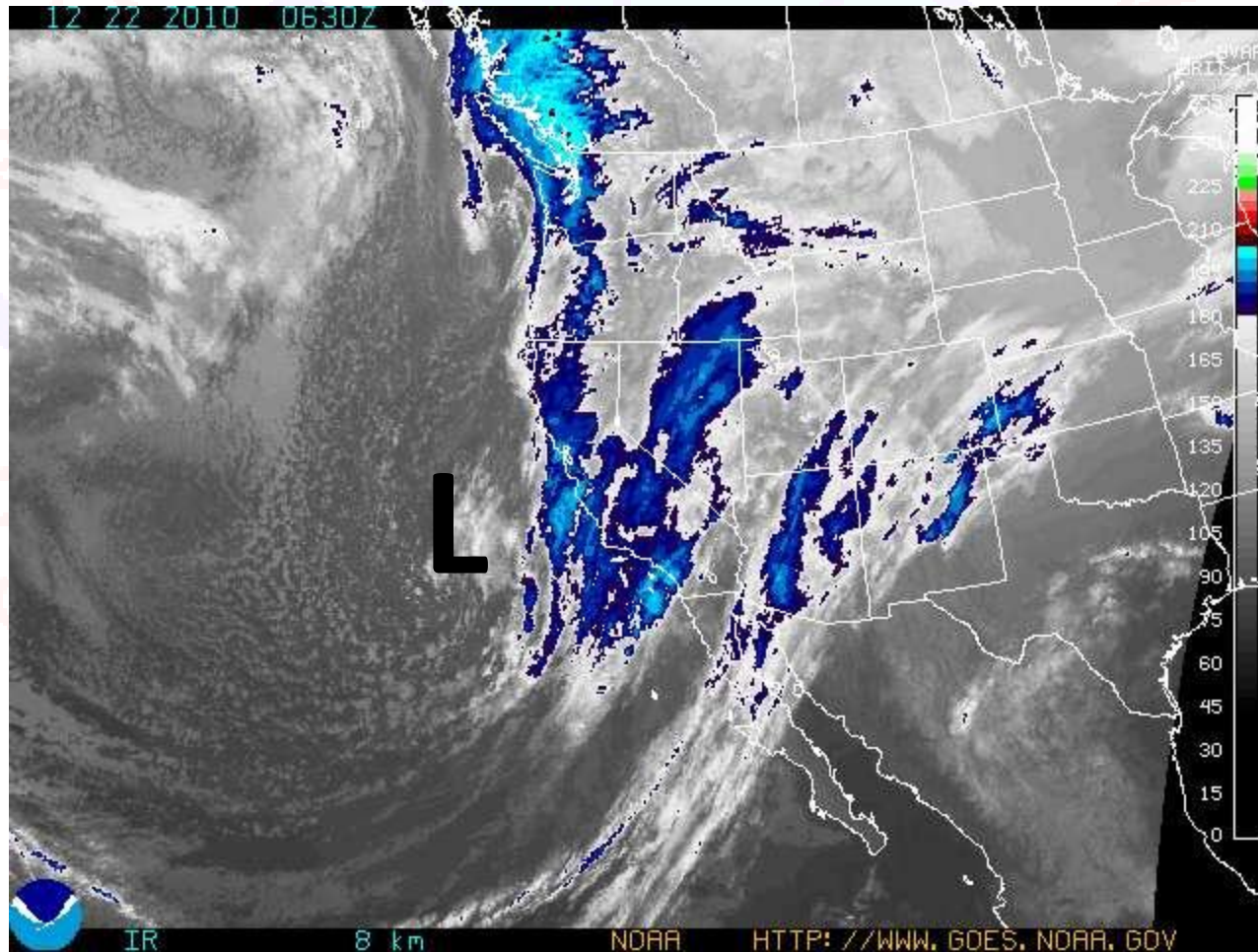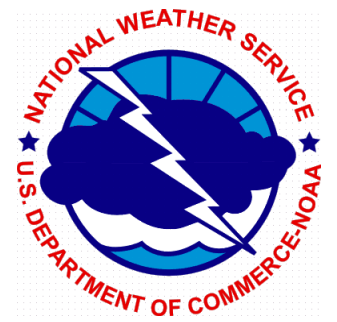# National Weather Service
San Diego, CA

infrared GOES image December 21 morning
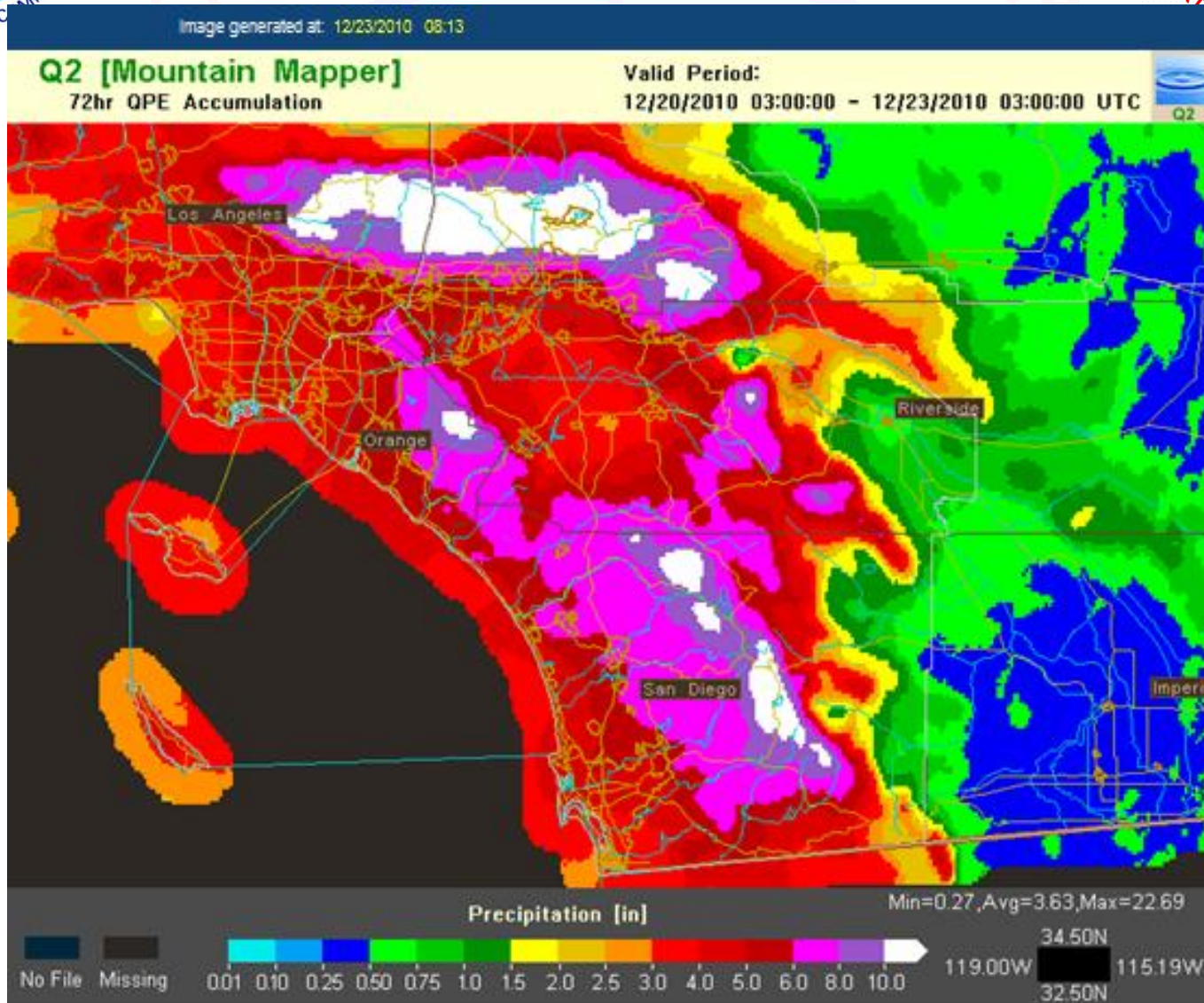
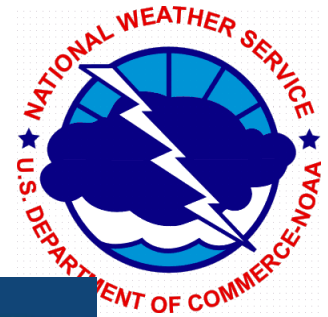# National Weather Service
San Diego, CA

infrared GOES image December 21 evening

main storm moves onshore
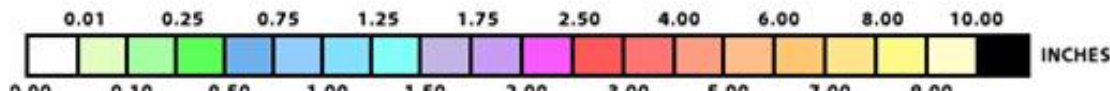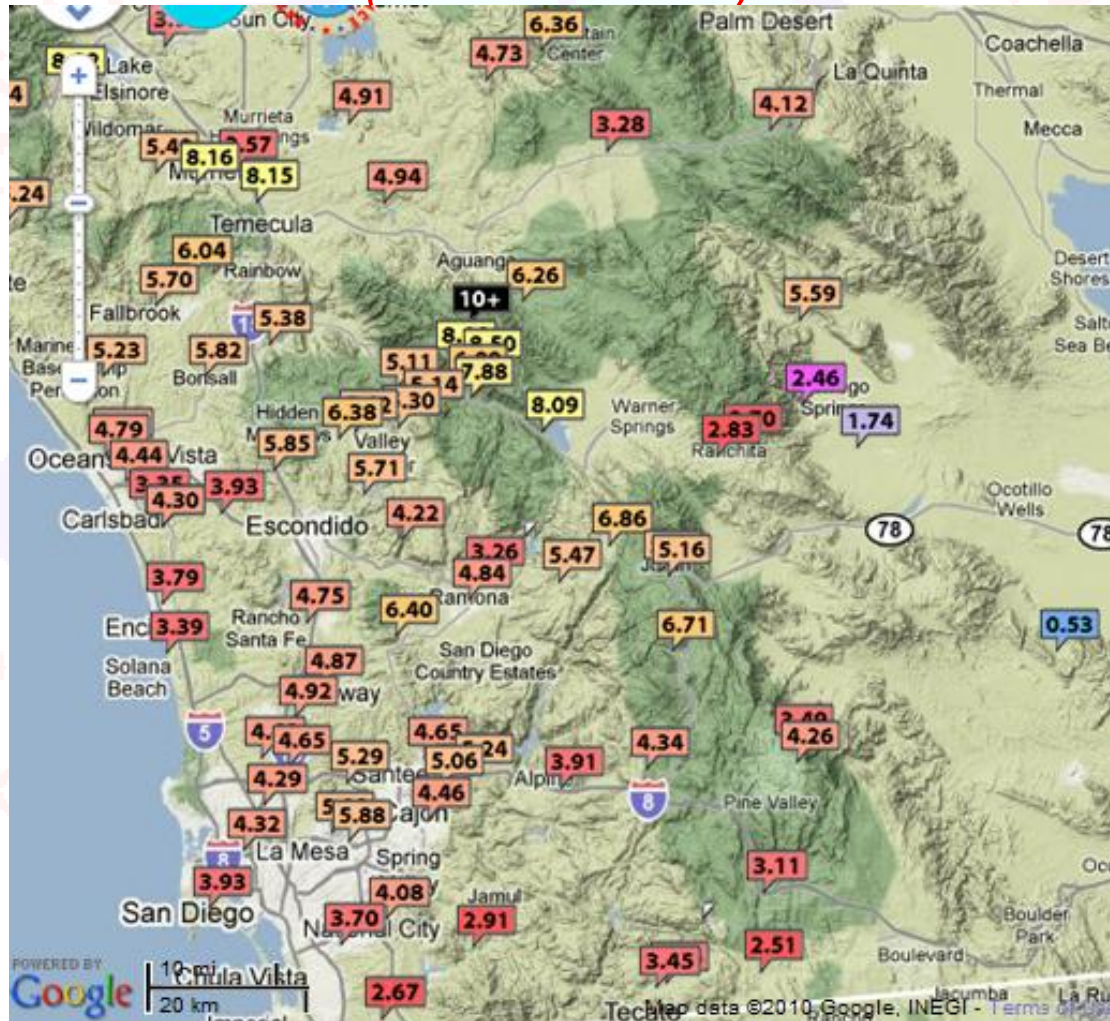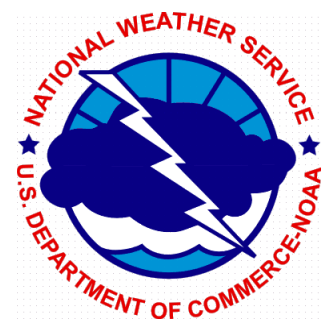
National Weather Service
San Diego, CA
Intense rainfall period December 20 to 22, 2010

National Weather Service
San Diego, CA
Intense 48-hour rainfall for San Diego County (December 20-22)
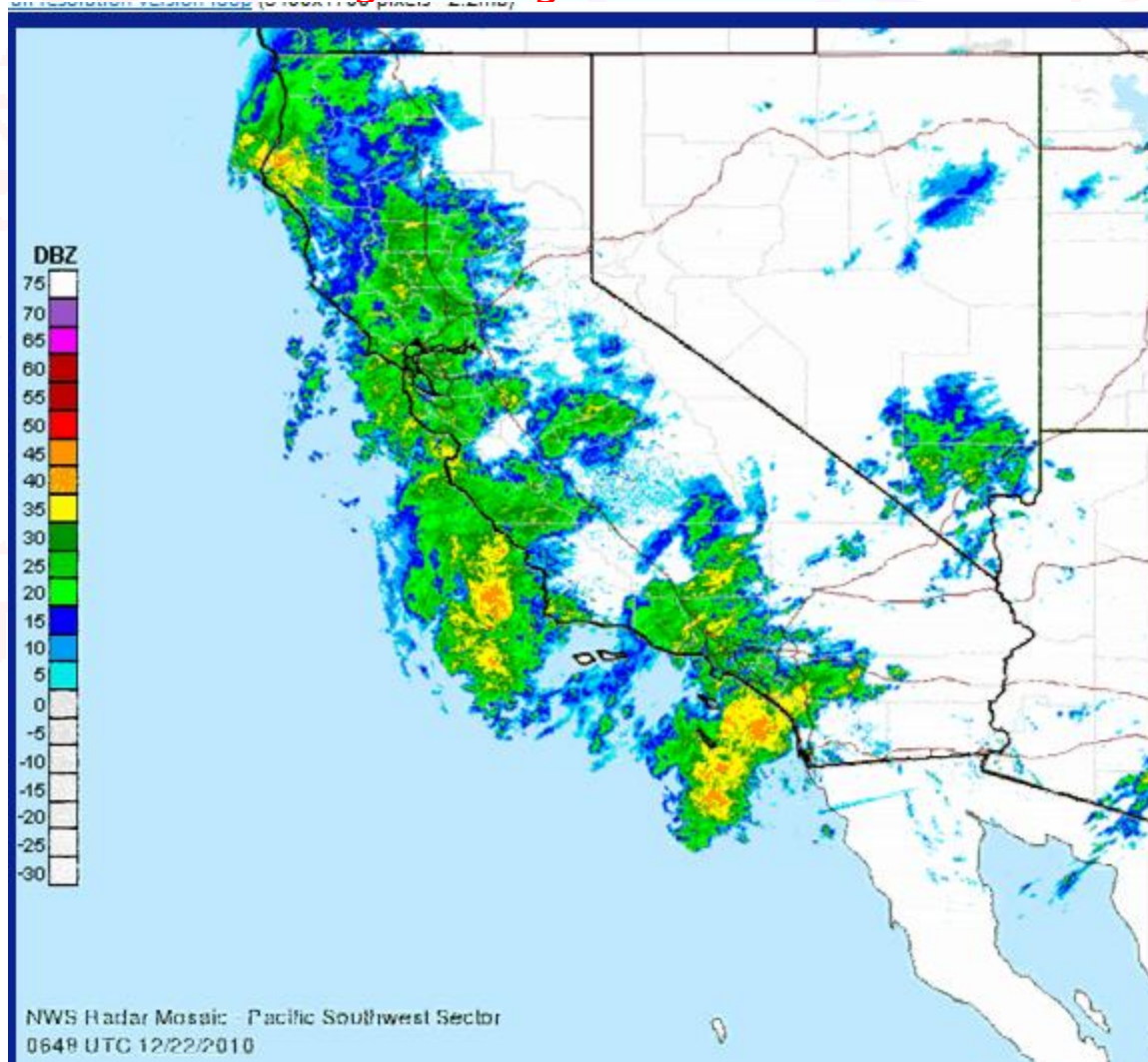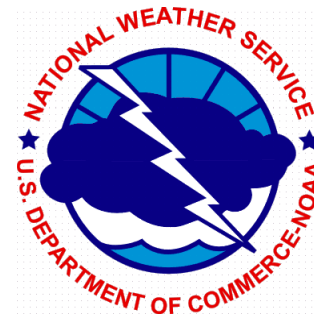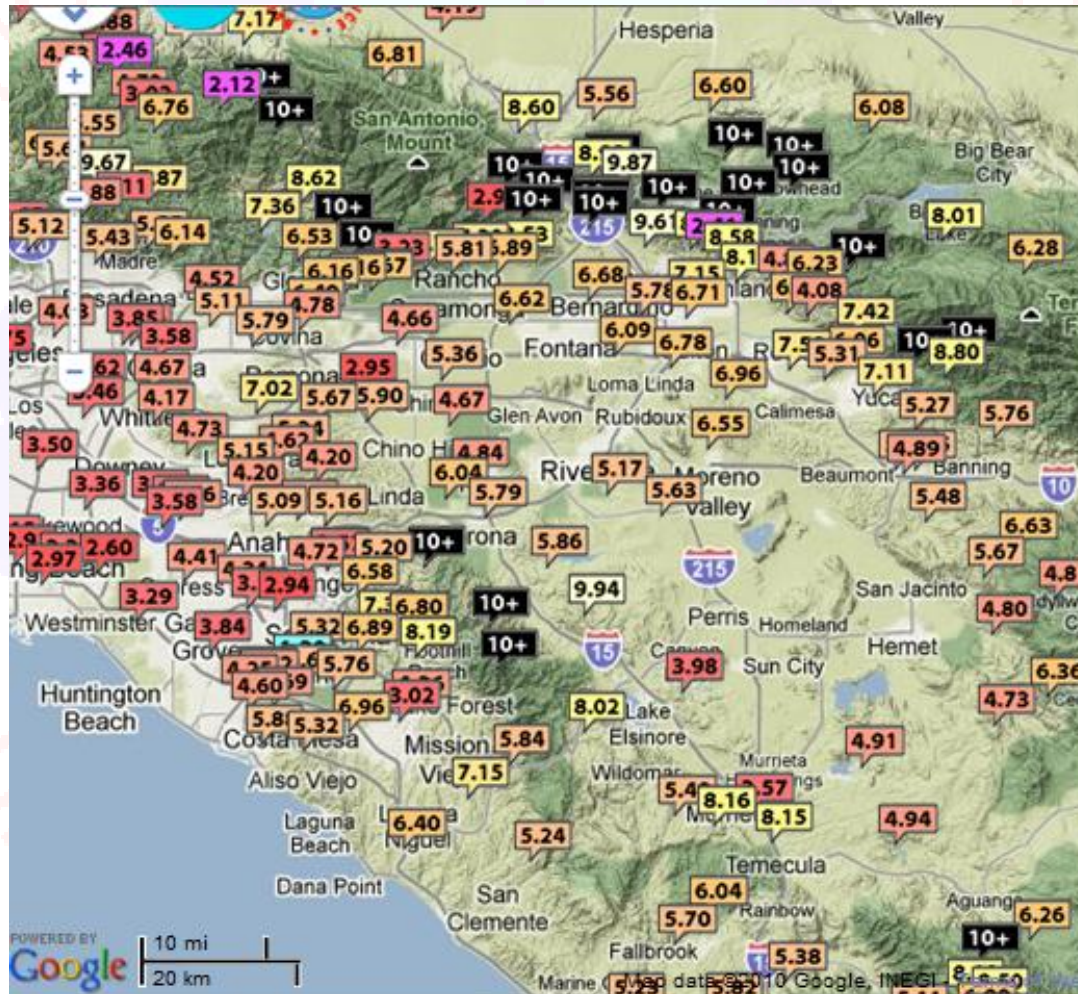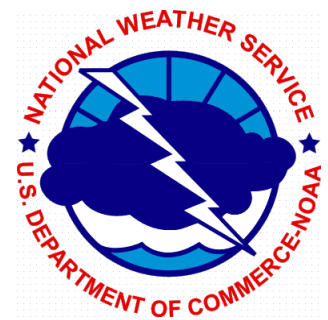
National Weather Service
San Diego, CA

*mosaic radar image depicted
widespread rain along the California Coast
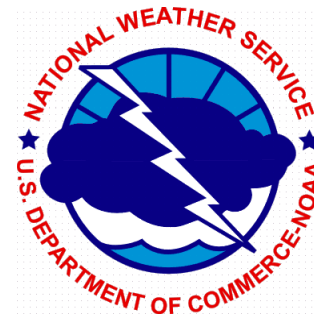during evening on December 21*

National Weather Service
San Diego, CA

Orange, Riverside and San Bernardino Counties
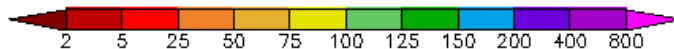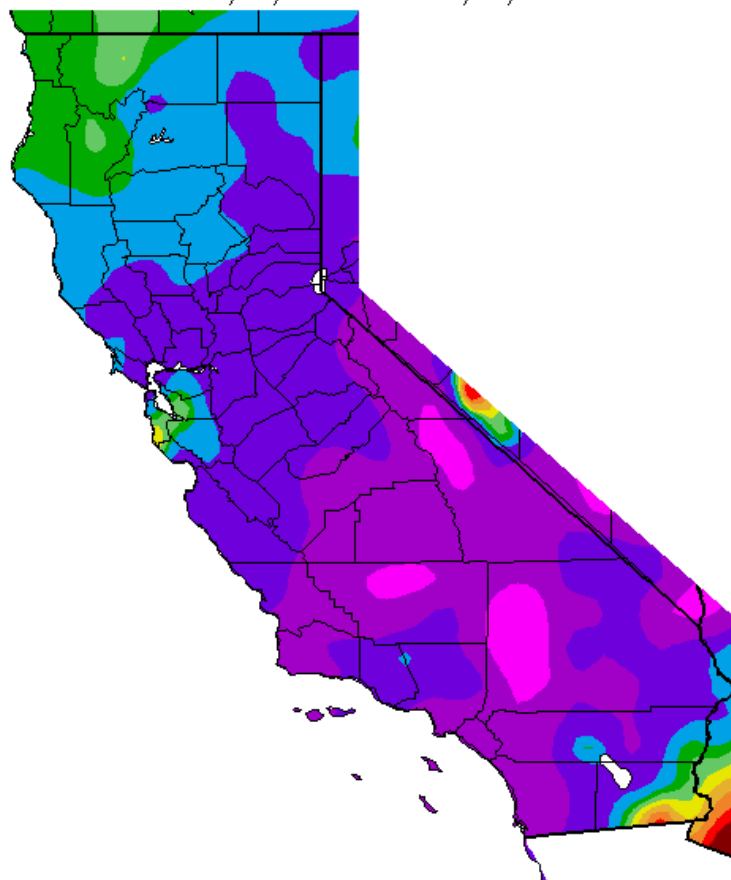*December 20-22 (48 hour rainfall totals)*

National Weather Service
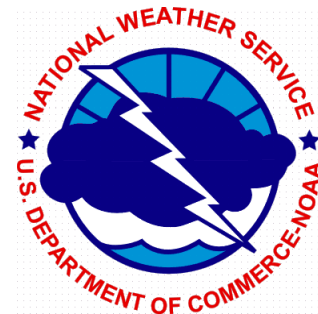San Diego, CA
Percent of Normal Precipitation

Percent of Average Precipitation (%)
12/4/2010 – 1/2/2011

Generated 1/03/2011 at WRCC using provisional data.
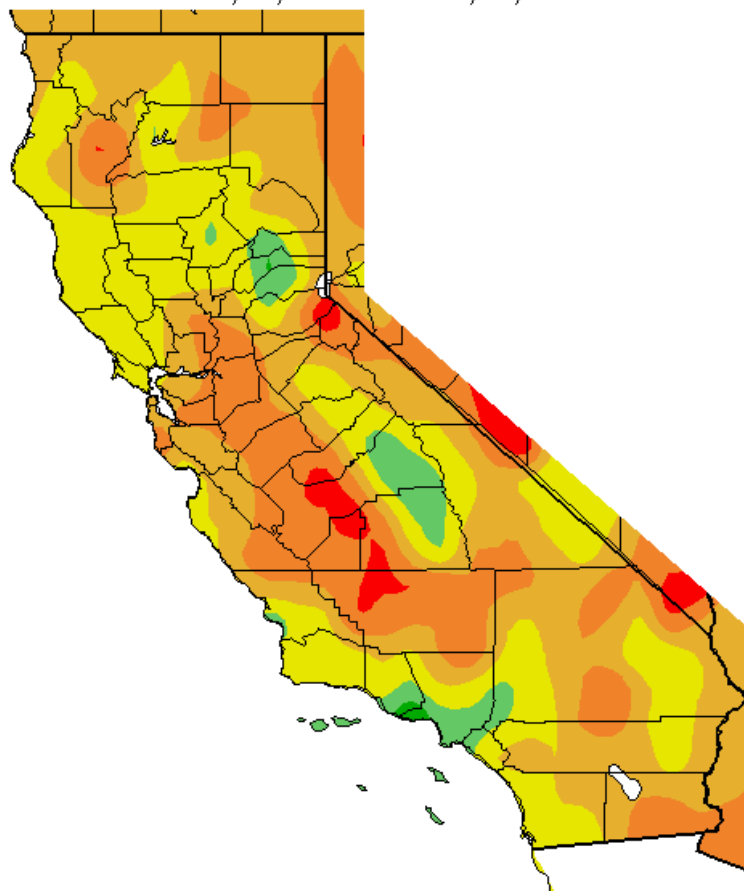NOAA Regional Climate Centers

National Weather Service
San Diego, CA

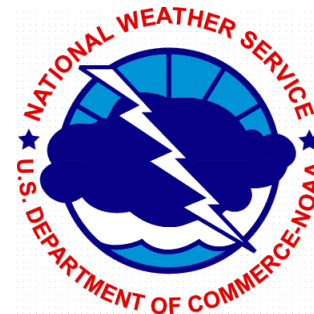*30-day Temperature Departure ending January 2, 2011*

Ave. Temperature dep from Ave (deg F)
12/4/2010 – 1/2/2011

Generated 1/03/2011 at WRCC using provisional data.
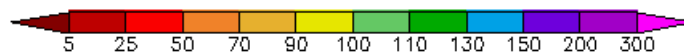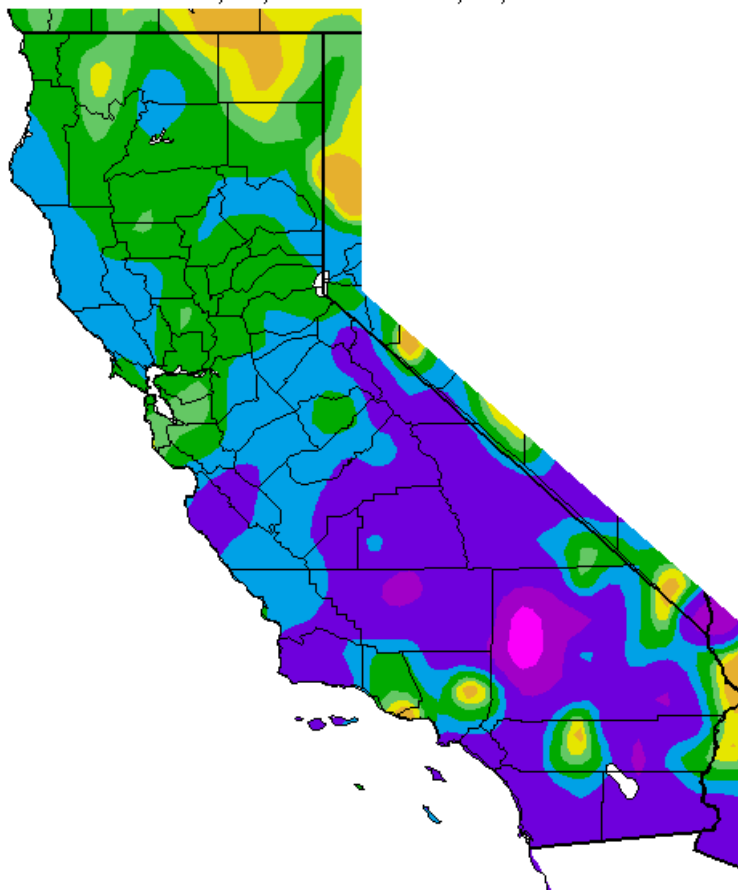NOAA Regional Climate Centers

National Weather Service
San Diego, CA

2010 annual percent of normal

Percent of Average Precipitation (%)
1/3/2010 – 1/2/2011

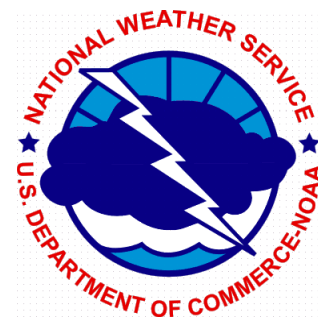5 25 50 70 90 100 110 130 150 200 300

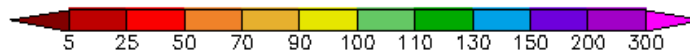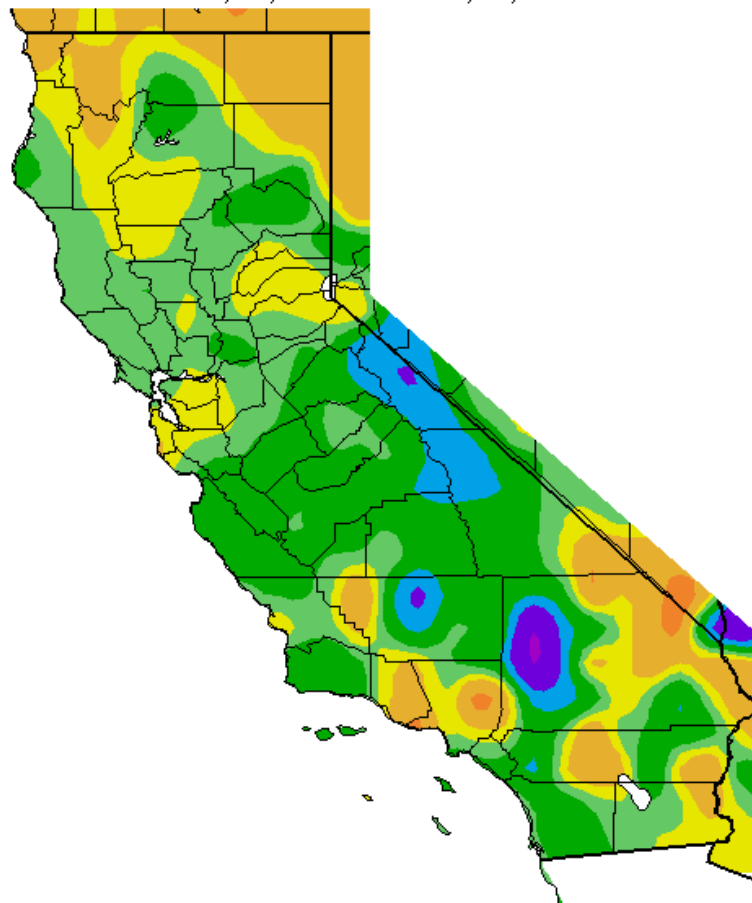Generated 1/03/2011 at WRCC using provisional data.
NOAA Regional Climate Centers

National Weather Service
San Diego, CA
2 year percent of normal

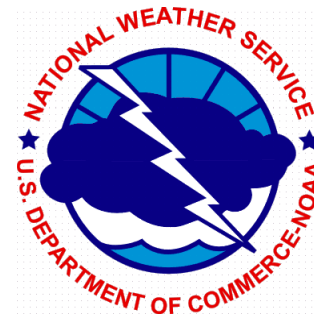Percent of Average Precipitation (%)
1/3/2009 – 1/2/2011

5   25   50   70   90   100   110   130   150   200   300
Generated 1/03/2011 at WRCC using provisional data.
NOAA Regional Climate Centers

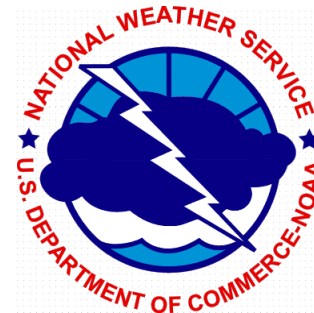# National Weather Service
San Diego, CA
Mission Valley – San Diego River
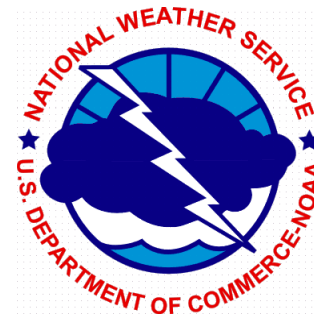
National Weather Service
San Diego, CA

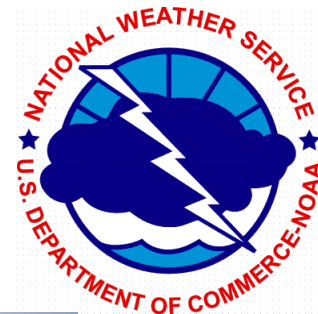*San Bernardino – City Creek and Santa Ana River*

National Weather Service
San Diego, CA
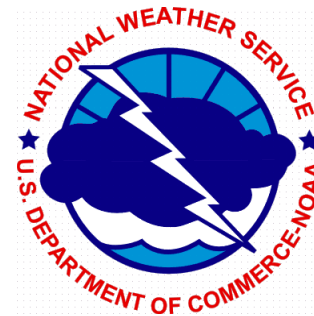*Loma Linda – land slides*

National Weather Service
San Diego, CA
Loma Linda to Highland – land slides
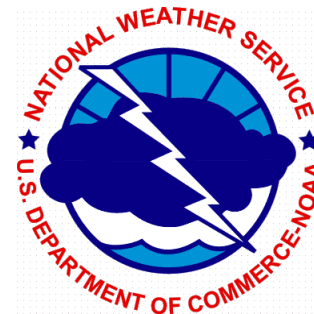
National Weather Service
San Diego, CA
Mojave Dam

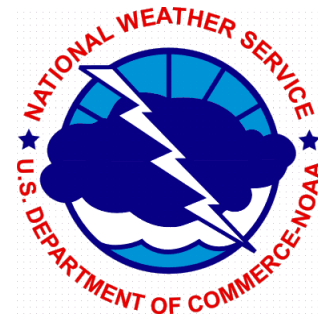# National Weather Service
San Diego, CA
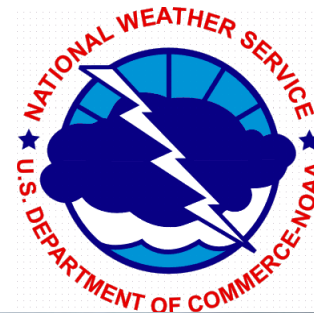*Public Domain Internet Blogs*

National Weather Service
San Diego, CA
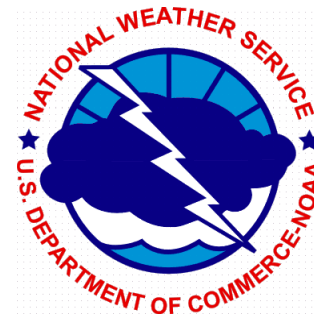## *Orange County*

National Weather Service
San Diego, CA
White Water Coachella Valley

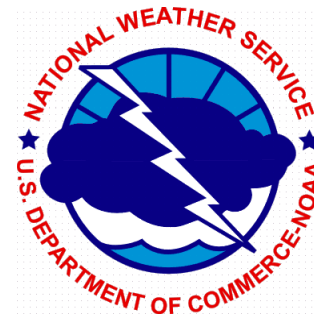# National Weather Service
San Diego, CA
Rose Canyon near La Jolla

National Weather Service
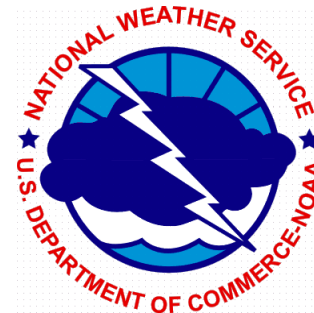# San Diego, CA
Sorrento Valley

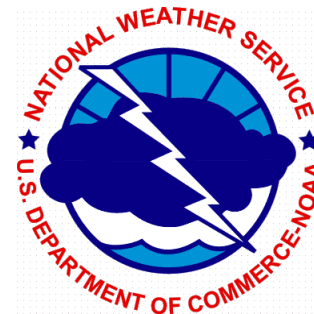# National Weather Service
San Diego, CA
Rancho Mirage

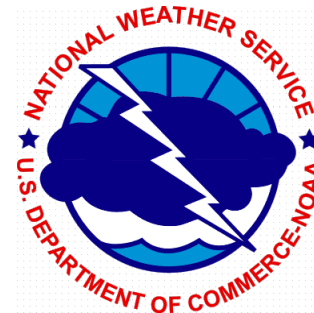# National Weather Service
San Diego, CA
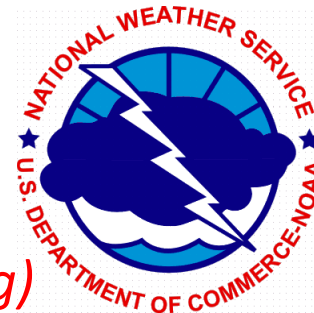*San Diego Fire rescues (Public Blog)*

National Weather Service
San Diego, CA
Inland Empire flooding (Public Blog)

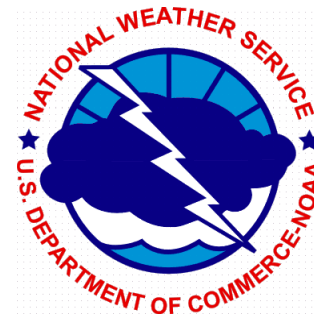# National Weather Service
San Diego, CA
Qualcomm Stadium San Diego Chargers (Public Blog)
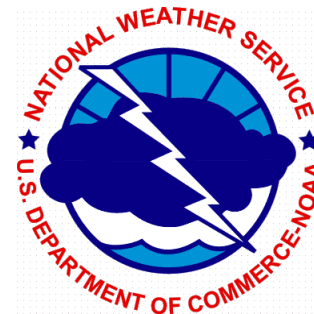
National Weather Service
San Diego, CA
Mission Valley (Public Blog)

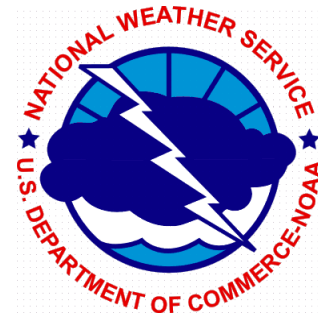# National Weather Service
San Diego, CA
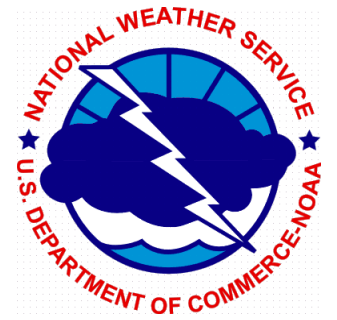*Laguna Beach business flooding (Public Blog)*

National Weather Service
San Diego, CA
Silverado Canyon floods (AP)

National Weather Service
San Diego, CA

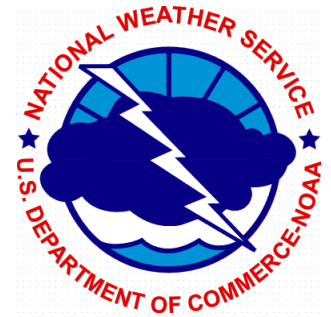*Elder Creek in San Bernardino County*

National Weather Service
San Diego, CA

Monitor rainfall
http://www.cnrfc.noaa.gov/google_precip.php

http://www.wrh.noaa.gov/sgx/kml/rrm.php?wfo=sgx

Monitor rivers
http://water.weather.gov/ahps2/index.php?wfo=sgx

weather graphics
http://www.wrh.noaa.gov/sgx/#

http://weather.gov/sandiego

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alexander.tardy@noaa.gov